ATTACHMENT E

CASE STUDY – Office Building

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7/12/03

LEED V2.1 Analysis for Java/Mathilda Core and Shell Sunnyvale, CA

Project Checklist

Sustainable Sites

14 Possible Points

LEED System Points	Probable Project Points (Existing Condition)	Possible Project Points with Strong Likelihood (if New Project)	"Strong Likelihood" Cost Impact	Possible Project Points with Less Strong Likelihood (if New Project)	"Less Strong Likelihood" Cost Impact	Project Cannot Meet Criteria			Comments
0	Met						Prereq 1	**Erosion & Sedimentation Control**	
1						1	Credit 1	**Site Selection**	
1						1	Credit 2	**Urban Redevelopment**	
1						1	Credit 3	**Brownfield Redevelopment**	
1	1						Credit 4.1	**Alternative Transportation Public,** Transportation Access	
1		1	$50,000				Credit 4.2	**Alternative Transportation,** Bicycle Storage & Changing Rooms	
1		1	$10,000				Credit 4.3	**Alternative Transportation,** Alternative Fuel Vehicles	
1						1	Credit 4.4	**Alternative Transportation,** Parking Capacity	
1				1			Credit 5.1	**Reduced Site Disturbance,** Protect or Restore Open Space	Cost Prohibitive
1	1						Credit 5.2	**Reduced Site Disturbance,** Development Footprint	
1	1						Credit 6.1	**Stormwater Management,** Rate and Quality	
1		1	$2,000				Credit 6.2	**Stormwater Management,** Treatment	
1		1	$40,000				Credit 7.1	**Heat Island Effect,** Non-Roof	
1		1	$50,000				Credit 7.2	**Heat Island Effect,** Roof	
1		1	$80,000				Credit 8	**Light Pollution Reduction**	
14	**3**	**6**	**$232,000**	**1**		**4**		**Subtotals**	

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Water Efficiency

5 Possible Points

LEED System Points	Probable Project Points (Existing Condition)	Possible Project Points with Strong Likelihood (if New Project)	"Strong Likelihood" Cost Impact	Possible Project Points with Less Strong Likelihood (if New Project)	"Less Strong Likelihood" Cost Impact	Project Cannot Meet Criteria			Comments
1	1						Credit 1.1	**Water Efficient Landscaping,** Reduce by 50%	
1	1						Credit 1.2	**Water Efficient Landscaping, No Potable Use or No Irrigation**	
1				1			Credit 2	**Innovative Wastewater Technologies**	Cost Prohibitive
1		1	$0				Credit 3.1	**Water Use Reduction,** 20% Reduction	
1		1	$5,000				Credit 3.2	**Water Use Reduction,** 30% Reduction	
5	**2**	**2**	**$5,000**	**1**		**0**		**Subtotals**	

Energy & Atmosphere

17 Possible Points

LEED System Points	Probable Project Points (Existing Condition)	Possible Project Points with Strong Likelihood (if New Project)	"Strong Likelihood" Cost Impact	Possible Project Points with Less Strong Likelihood (if New Project)	"Less Strong Likelihood" Cost Impact	Project Cannot Meet Criteria			Comments
0	Met						Prereq 1	**Fundamental Building Systems Commissioning**	
0	Met						Prereq 2	**Minimum Energy Performance**	
0	Met						Prereq 3	**CFC Reduction in HVAC&R Equipment**	
10	2			1 add.	$400,000		Credit 1	**Optimize Energy Performance**	Cost is for additional credit
1				1	$500,000		Credit 2.1	**Renewable Energy, 5%**	

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1				1			Credit 2.2	**Renewable Energy, 10%**	Cost Prohibitive
1				1			Credit 2.3	**Renewable Energy, 20%**	Cost Prohibitive
1		1	$50,000				Credit 3	**Additional Commissioning**	
1				1			Credit 4	**Ozone Depletion**	Cost Prohibitive
1		1	$30,000				Credit 5	**Measurement & Verification**	
1				1			Credit 6	**Green Power**	Unknown Impact
17	**2**	**2**	**$80,000**	**6**		**0**		**Subtotals**	

Materials & Resources

13 Possible Points

LEED System Points	Probable Project Points (Existing Condition)	Possible Project Points with Strong Likelihood (if New Project)	"Strong Likelihood" Cost Impact	Possible Project Points with Less Strong Likelihood (if New Project)	"Less Strong Likelihood" Cost Impact	Project Cannot Meet Criteria			Comments
0	Met						Prereq 1	**Storage and Collection Recyclables**	
1						1	Credit 1.1	**Building Reuse,** Maintain 75% of Existing Shell	
1						1	Credit 1.2	**Building Reuse,** Maintain 100% of Shell	
1						1	Credit 1.3	**Building Reuse,** Maintain 100% Shell & 50% Non-Shell	
1		1	$20,000				Credit 2.1	**Construction Waste Management,** Divert 50%	
1		1	$30,000				Credit 2.2	**Construction Waste Management,** Divert 75%	
1						1	Credit 3.1	**Resource Reuse,** Specify 5%	
1						1	Credit 3.2	**Resource Reuse,** Specify 10%	
1		1	$40,000				Credit 4.1	**Recycled Content,** Specify 5% (p.c. + ½ p.i.)	
1				1			Credit 4.2	**Recycled Content,** Specify 10% (p.c. + ½ p.i.)	Cost Prohibitive

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1	1						Credit 5.1	**Local/Regional Materials** 20% Manufactured Locally	
1				1	$250,000		Credit 5.2	**Local/Regional Materials,** of 20% in MRc5.1, 50% Harvested Locally	Likely would require structural system change
1				NA			Credit 6	**Rapidly Renewable Materials**	"Less Strong Likelihood" if T.I. was incl. in scope; $100K cost
1		1	$20,000				Credit 7	**Certified Wood**	"Less Strong Likelihood" if T.I. was included in scope
13	**1**	**4**	**$110,000**	**2**		**5**		**Subtotals**	

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Indoor Environmental Quality

15 Possible Points

LEED System Points	Probable Project Points (Existing Condition)	Possible Project Points with Strong Likelihood (if New Project)	"Strong Likelihood" Cost Impact	Possible Project Points with Less Strong Likelihood (if New Project)	"Less Strong Likelihood" Cost Impact	Project Cannot Meet Criteria			Comments
0	Met						Prereq 1	**Minimum IAQ Performance**	
0	Not Met	Would Be Met					Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	No Cost Impact
1		1	$10,000				Credit 1	**Carbon Dioxide (CO_2) Monitoring**	
1				1	$1.1M		Credit 2	**Ventilation Effectiveness**	
1		1	$20,000				Credit 3.1	**Construction IAQ Management Plan,** During Construction	
1		NA					Credit 3.2	**Construction IAQ Management Plan,** Before Occupancy	"Strong Likelihood" if T.I. was incl. in scope; min $15K+ cost
1		1	$0				Credit 4.1	**Low-Emitting Materials,** Adhesives & Sealants	
1		1	$0				Credit 4.2	**Low-Emitting Materials,** Paints	
1		NA					Credit 4.3	**Low-Emitting Materials,** Carpet	"Strong Likelihood" if T.I. was included in scope; $0 cost
1		1	$0				Credit 4.4	**Low-Emitting Materials,** Composite Wood	
1		1	$20,000				Credit 5	**Indoor Chemical & Pollutant Source Control**	
1				NA			Credit 6.1	**Controllability of Systems,** Perimeter	"Less Strong Likelihood" if T.I. was incl. in scope; $250K cost
1						1	Credit 6.2	**Controllability of Systems,** Non-Perimeter	
1		1	$0				Credit 7.1	**Thermal Comfort,** Comply with ASHRAE 55-1992	LEED Interpretation Required
1		1	$15,000				Credit 7.2	**Thermal Comfort,** Permanent Monitoring System	Credit 7.1 Needed First
1				NA			Credit 8.1	**Daylight & Views,** Daylight 75% of Spaces	"Less Strong Likelihood" if T.I. was included in scope
1		NA					Credit 8.2	**Daylight & Views,** Views for 90% of Spaces	"Strong Likelihood" if T.I. was included in scope; $0 cost
15	**0**	**8**	**$65,000**	**1**		**1**		**Subtotals**	

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Innovation & Design Process

5 Possible Points

LEED System Points	Probable Project Points (Existing Condition)	Possible Project Points with Strong Likelihood (if New Project)	"Strong Likelihood" Cost Impact	Possible Project Points with Less Strong Likelihood (if New Project)	"Less Strong Likelihood" Cost Impact	Project Cannot Meet Criteria			Comments
1		1	$0				Credit 1.1	**Innovation in Design**	Example: Education of Occupants
1				1			Credit 1.2	**Innovation in Design**	Unknown Cost Impact
1				1			Credit 1.3	**Innovation in Design**	Unknown Cost Impact
1				1			Credit 1.4	**Innovation in Design**	Unknown Cost Impact
1		1	$0				Credit 2	**LEED™ Accredited Professional**	
5	**0**	**2**	**$0**	**3**		**0**		**Subtotals**	

69	**8**	**24**	**$492,000**	**14**		**10**		**Project Point Totals** 69 Possible Points	
								Certified 26-32 points; **Silver** 33-38 points; **Gold** 39-51 points; **Platinum** 52-69 points	

Project Cost Totals

$14.0M							Total Construction Cost (existing project)
		$492,000					Total Cost Increase for "Strong Likelihood" Credits

Summary
69 – Total LEED System Points Allowed
08 – Total Probable Points, LEED Uncertified (existing condition), "0" project cost impact
24 – Total Possible Project Points with Strong Likelihood (if new core/shell project), 08 + 24 = 32, Certified, at $492,000 = increase of 4% of "construction cost"

To achieve Silver level (if new core/shell project), include "LEED certification" credits + credit MR 5.2 at $250,000 = increase of 6% of "construction cost"
Gold level is cost prohibitive, and platinum level is not attainable.

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Appendix A

Impacts on LEED Credits by City Ordinances
January 9, 2004

LEED V2.1 Analysis for
Java/Mathilda Core and Shell
Sunnyvale, CA

RMW prepared an analysis for the Java/Mathilda Core and Shell Project dated December 15, 2003, based on USGBC LEED system Version 2.1. The analysis of the existing development was intended to determine how a typical new office building development in the City of Sunnyvale would perform in relation to the LEED Green Building Rating System. The analysis concluded that, although the Java/Mathilda project did not base its development on LEED certification, it did garner some LEED credits. Some of those credits captured were due to beneficial site conditions, while others were due to design. Of those captured, a few of the credits (and prerequisites) were garnered, in part, because of City of Sunnyvale Ordinance requirements.

Following is a list of credits that were positively impacted by City of Sunnyvale Ordinances, and other City of Sunnyvale key elements:

LEED Credit	Ordinance or System Impacting Credit
Sustainable Sites, **Erosion & Sedimentation Control**, Prerequisite 1 (prereq only, no credits available)	City of Sunnyvale Best Management Practices
Sustainable Sites, **Alternative Transportation**, Public Transportation Access, Credit 4.1 (1 credit captured)	Light rail system in close proximity to site
Sustainable Sites, **Alternative Transportation**, Bicycle Storage & Changing Rooms, Credit 4.2 (0 credits captured)	Santa Clara Valley Transportation Authority Technical Guidelines for bike parking used by City of Sunnyvale, although not meeting the count requirement by LEED, was positively impacting this credit
Sustainable Sites, **Alternative Transportation**, Alternative Fuel Vehicles, Credit 4.4 (0 credits captured)	City of Sunnyvale Title 19 requiring preferential parking for HOV's. Credit not captured because overall site parking capacity exceeded minimum reqt.
Sustainable Sites, **Heat Island Affect**, Non-Roof, Credit 7.1 (0 credits captured)	City of Sunnyvale Title 19 requiring 50% coverage in 15 years, although not meeting the 30%/5 yr requirement by LEED, is a strong step towards meeting the spirit of the credit. There is a potential for this reqt to change as LEED is looking into possibly modifying this credit to make it more achievable, and realistic. City of Sunnyvale's 50%/15yr reqt is likely the type of direction LEED is investigating.
Water Efficiency, **Water Efficient Landscaping**, Reduce by 50%, Credit 1.1 (1 credit captured)	City of Sunnyvale recycled water system achieves this credit
Water Efficiency, **Water Efficient Landscaping**, No Potable Use or No Irrigation, Credit 1.2 (1 credit captured)	City of Sunnyvale recycled water system achieves this credit
Energy & Atmosphere, **Minimum Energy Performance**, Prerequisite 2 (prereq only, no credits available)	Title 24 requirements achieves this prerequisite
Energy & Atmosphere, **Optimize Energy Performance**, Credit 1 (2 credits captured)	Title 24 requirements aided in capturing credits
Materials & Resources, **Storage & Collection of Recyclables**, Prerequisite 1 (prereq only, no credits available	City of Sunnyvale Title 19 requiring recyclable storage